October 27, 1999

Spectrolab, NREL Achieve Word Record Efficiency

Spectrolab, a unit of Hughes Electronics Corporation, and the National Renewable Energy Laboratory (NREL) recently announced they have achieved a conversion efficiency of 32.2 percent for a solar cell. The cell, Spectrolab's triple-junction gallium-indium-phosphide on gallium arsenide on germanium concentrator solar cell, could double the power output of terrestrial photovoltaic (PV) applications in operation today.

"We are extremely excited about this result," said Spectrolab vice president for solid-state products David Lillington. "Multi-junction solar cells have made a major impact on the cost-effectiveness and revenue- generating capabilities of high-power space satellites over the last five years, and we expect them to have a similar impact on the $1 billion terrestrial [PV] industry."

The 32.2 percent conversion efficiency of the cell sets a new world record, said Spectrolab. The measurement of the cell was made under an Air Mass 1.5 direct spectrum, and the data was recorded by NREL on a device developed by Spectrolab and processed and measured at NREL.

Spectrolab said the measurements were performed at various concentration ratios between 1X and 300X, with cell performance peaking at a concentration of approximately 50 suns.

"I am very pleased to see industry beginning to take [gallium-arsenide]-based cells seriously for terrestrial power generation," said Jerry Olson, principal scientist in NREL's High-Efficiency and Concentrators Photovoltaics Group. "This is a very encouraging result, and is supportive of the Department of Energy's 'One- Third of a Sun' initiative to develop solar cells that convert one-third or more of he sun's energy to electricity."

Sylmar, CA-based Sprectrolab has been supplying solar cells and panels to the space industry for 40 years. The company is also a leading supplier of searchlights and solar simulators. Contact: Hughes, phone 310-364- 6363.